

Related Roadmaps

✔ Backend Roadmap

✔ DevOps Roadmap

✔ Go Roadmap

Find the interactive version of this roadmap and more roadmaps at

roadmap.sh

Syntax and Semantics

Variables, DataTypes and Constants

Control Flow and Constructs

Functions and Method Syntax

Pattern Matching & Destructuring

Constructs

Enums

Traits

Structs

Impl Blocks

Data Structures

Integers

Floats

Boolean

Character

String

Tuple

Array

Vector

Hashmap

Hashset

LinkedList

Stack

Queue

Binary Heap

Ownership System

Ownership Rules & Memory Safety

Borrowing, References and Slices

Deep Dive: Stack vs Heap

Advanced Topics

BTreeMap

BTreeSet

RC

Arc

Mutex

RwLock

Channels

Declarative Macros with macro\_rules!

Procedural Macros & Custom Derive

Domain Specific Languages (DSLs)

Macros & Metaprogramming

Ecosystem and Libraries

Web Development

Asynchronous Programming

Tokio

async-std

smol

Networking

reqwest

hyper

quinn

Serialization / Deserialization

Serde

json-rust

toml-rust

Cryptography

ring

rust-crypto

sodiumoxide

Database and ORM

Diesel

sqlx

rusqlite

termion

structopt

clap

CLI Utilities

Game Development

bevy

fyrox

ggez

macroquad

wgpu-rs

GUI Development

tauri

gtk-rs

relm

Embedded and Systems

embedded-hal

rppal

nrf-hal

WebAssembly (WASM)

wasm-pack

wasmer

wasm-bindgen

Performance and Profiling

Criterion.rs

Documenting with `rustdoc`

Debugging

rust-gdb

rust-lldb

Continue learning with following roadmaps

Backend

DevOps

Rust

Introduction

Language Basics

Error Handling

Modules & Crates

Testing

Unit & Integration Testing

Mocking & Property Based Testing

Traits & Generics

Concurrency & Parallelism

Threads, Channels and Message Passing

Atomic Operations & Memory Barriers

Futures and Async/Await Paradigm

Trait Definitions & Implementations

Trait Bounds and Associated Types

Generics & Type-Level Programming

Lifetimes & Borrow Checker

Explicit Lifetime Annotations

Lifetime Elision Rules

Covariant & Contravariant Lifetimes

Web Development

Axum

Actix

Leptos

Loco

Rocket

Personal recommendation: Axum

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What is Rust?

Why use Rust?

Environment Setup

Installing Rust and Cargo

IDEs and Rust Toolchains

Rust REPL (Rust Playground)

Option and Result Enumerations

Propagating Errors and `?` Operator

Custom Error Types and Traits

Code Organization & Namespacing

Dependency Management with Cargo

Publishing on Crates.io